

*discharging to contact recreational waters).*” U.S. EPA’s TSD also recommends that factors other than effluent data should be considered in the RPA, *“When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.”* With regard to POTW’s, U.S. EPA recommends that, *“POTW’s should also be characterized for the possibility of chlorine and ammonia problems.”* (TSD, p. 50)

Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia in concentrations that produce detrimental physiological responses to human, plant, animal, or aquatic life would violate the Basin Plan’s narrative toxicity objective. Although the Discharger nitrifies the discharge, inadequate or incomplete nitrification creates the potential for ammonia to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for ammonia and WQBEL’s are required.

- (c) **WQBEL’s.** The Central Valley Water Board calculates WQBEL’s in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, U.S. EPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTA’s corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the average weekly effluent limitation (AWEL). The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures.

The AMEL calculated based on effluent ammonia data collected from June 2016 through December 2017 is less stringent compared to the AMEL established in Order R5-2014-0007. Therefore, in order to avoid backsliding in accordance with sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l), this Order retains the AMEL for ammonia of 0.7 mg/L from Order R5-2014-0007. In accordance with 40 C.F.R. section 122.45(d), which requires AMEL’s and AWEL’s for POTW’s unless impracticable, this Order replaces the MDEL

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with an AWEL of 1.6 mg/L. Mass-based limits for ammonia were calculated using the permitted average dry weather flow of 8.4 MGD; resulting an AMEL of 49 lbs/day and an AWEL of 110 lbs/day.

- (d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the maximum observed effluent ammonia concentration of 0.27 mg/L is less than the applicable WQBEL's. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

ii. **Antimony**

- (a) **WQO.** DDW has adopted a Primary MCL for antimony of 6.0 µg/L, which is protective of the Basin Plan's chemical constituent objective.
- (b) **RPA Results.** The maximum effluent concentration (MEC) for antimony was 6.6 µg/L based on four samples collected between June 2016 and December 2017. The maximum observed upstream receiving water antimony concentration was 1.7 µg/L based on four samples collected between January 2015 and December 2017. Therefore, antimony in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL.
- (c) **WQBEL's.** This Order establishes a final AMEL and maximum daily effluent limitation (MDEL) for antimony of 6.0 µg/L and 12 µg/L, respectively, based on the Primary MCL.
- (d) **Plant Performance and Attainability.** Based on the analysis of existing effluent data, the Central Valley Water Board concludes that immediate compliance with the WQBEL's for antimony is feasible. The City is conducting a focused monitoring study of antimony. Because this issue is ongoing, based on supplemental effluent data yet to be collected, the City may request a time schedule for compliance with the antimony effluent limitations.

iii. **Mercury**

- (a) **WQO.** The current U.S. EPA NAWQC for the protection of freshwater aquatic life, continuous concentration, for mercury is 770 ng/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 50 ng/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 C.F.R. part 131, U.S. EPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "...more stringent mercury limits may be determined and implemented through use of the State's narrative criterion." In the CTR, U.S. EPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

The State Water Board adopted Resolution 2017-0027 on 2 May 2017, which approved *Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions* (Statewide Mercury Provisions). The Statewide Mercury Provisions establish a Sport Fish Water Quality Objective of an average 0.2 mg/kg methylmercury fish

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tissue concentration within a calendar year for waters with the beneficial uses of commercial and sport fishing (COMM), tribal tradition and culture (CUL), wildlife habitat (WILD), and marine habitat (MAR). This fish tissue objective corresponds to a water column concentration of 12 ng/L of total mercury for flowing water bodies (e.g., rivers, creeks, streams, and waters with tidal mixing). As shown in Table F-3, the beneficial uses of the Sacramento River from the Colusa Basin Drain to the I Street Bridge, to which Auburn Ravine Creek, via East Side Canal and Natomas Cross Canal, is tributary, include WILD; therefore, the Sport Fish Water Quality Objective is applicable.

- (b) **RPA Results.** The Statewide Mercury Provisions specify that the RPA shall be conducted using the maximum annual average effluent and background mercury concentrations for comparison with the Sport Fish Water Quality Objective. The MEC for mercury was 1.49 ng/L, with a maximum annual average of 0.80 ng/L, based on four samples collected from June 2016 through December 2017. The maximum annual average background concentration for mercury was 15 ng/L based on four samples collected from January 2015 through December 2017. Therefore, the discharge does not exhibit reasonable potential to exceed the Sport Fish Water Quality Objective. The Statewide Mercury Provisions specify that if the maximum annual average background concentration exceeds the applicable water quality objective, and mercury is detected in the effluent, effluent monitoring shall be required.

Mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The Natomas Cross Canal and Sacramento River from Knights Landing to the Delta, to which Auburn Ravine Creek is tributary, have been listed as impaired water bodies pursuant to CWA section 303(d) because of mercury and the discharge must not cause or contribute to increased mercury levels. A TMDL is under development for the Natomas Cross Canal and Sacramento River downstream of the Facility, which may include a WLA applicable to the Facility.

- (c) **WQBEL's.** Order R5-2014-0007 included a performance-based mass effluent limitation for mercury of 0.0234 lbs/month, which is applicable to the discharge from the Facility following completion of regionalization with the Placer County SMD1 WWTP. The performance-based mass limit is representative of the sum of the mass loading from the Facility prior to regionalization (0.022 lbs/month) and the additional loading from the Placer County SMD1 WWTP (0.0014 lbs/month). For this Order, the averaging period for the mass-based effluent limitation has been revised to be consistent with performance-based mass limitations assigned to other recently adopted permits in the region. Therefore, this Order contains a performance-based mass effluent limitation of 0.28 lbs/year for mercury, based on the monthly mass limitation included in Order R5-2014-0007. This limitation is based on maintaining the mercury loading until a TMDL is established or U.S. EPA develops mercury standards that are protective of human health. If U.S. EPA develops new water quality standards for mercury, this Order may be reopened and the effluent limitations adjusted.

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- (d) **Plant Performance and Attainability.** The mass effluent limitation for mercury is based on Facility performance. The Central Valley Water Board concludes, therefore, that immediate compliance with this effluent limitation is feasible.

iv. **Nitrate and Nitrite**

- (a) **WQO.** DDW has adopted Primary MCL's for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (as N), respectively. DDW has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite (as N).

U.S. EPA has developed a Primary MCL and an MCL goal of 1 mg/L for nitrite (as nitrogen). For nitrate, U.S. EPA has developed Drinking Water Standards (10 mg/L as a Primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects).

- (b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that are harmful to aquatic life and exceed the Basin Plan's narrative toxicity objective. This Order, therefore, requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that converts ammonia to nitrate and nitrite, and will result in effluent nitrate concentrations above the Primary MCL for nitrate plus nitrite. Nitrate concentrations in a drinking water supply above the Primary MCL threaten the health of human fetuses and newborn babies by reducing the oxygen-carrying capacity of the blood (methemoglobinemia).

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) require that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.*" For priority pollutants, the SIP dictates the procedures for conducting the RPA. Nitrate and nitrite are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for these non-priority pollutant constituents.

U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters).*" U.S. EPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the*

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*regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.” With regard to POTW’s, U.S. EPA recommends that, “POTW’s should also be characterized for the possibility of chlorine and ammonia problems.” (TSD, p. 50)*

The concentration of nitrogen in raw domestic wastewater is sufficiently high that the resultant treated wastewater has a reasonable potential to exceed or threaten to exceed the Primary MCL for nitrate plus nitrite unless the wastewater is treated for nitrogen removal, and therefore an effluent limit for nitrate plus nitrite is required. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification/denitrification to remove ammonia, nitrite, and nitrate from the waste stream. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving water. Discharges of nitrate plus nitrite in concentrations that exceed the Primary MCL would violate the Basin Plan’s narrative chemical constituents objective. Although the Discharger denitrifies the discharge, inadequate or incomplete denitrification creates the potential for nitrate and nitrite to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for nitrate plus nitrite and WQBEL’s are required.

- (c) **WQBEL’s.** This Order contains an AMEL and AWEL for nitrate plus nitrite of 10 mg/L and 17 mg/L, respectively, based on the Basin Plan’s narrative chemical constituents objective for protection of the MUN beneficial use. These effluent limitations are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the MUN beneficial use.
- (d) **Plant Performance and Attainability.** The maximum observed concentration for nitrate plus nitrite in the effluent was 4.2 mg/L based on four samples collected from June 2016 through December 2017, which is below the WQBEL’s. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **Pathogens**

- (a) **WQO.** DDW has developed reclamation criteria, CCR, division 4, chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL, at any time.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-

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restricted recreational impoundment is defined as “...an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities.” Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the DDW’s reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

- (b) **RPA Results.** Raw domestic wastewater inherently contains human pathogens that threaten human health and life and constitute a threatened pollution and nuisance under California Water Code section 13050 if discharged untreated to the receiving water. Reasonable potential for pathogens therefore exists and WQBEL’s are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) requires that, “Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.” For priority pollutants, the SIP dictates the procedures for conducting the RPA. Pathogens are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for these non-priority pollutant constituents.

U.S. EPA’s September 2010 NPDES Permit Writer’s Manual, page 6-30, states, “State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL’s are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL’s for pathogens in all permits for POTW’s discharging to contact recreational waters).” U.S. EPA’s TSD also recommends that factors other than effluent data should be considered in the RPA, “When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.” (TSD, p. 50)

The beneficial uses of Auburn Ravine Creek include MUN, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley

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Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Discharger provides disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for pathogens and WQBEL's are required.

- (c) **WQBEL's.** In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum.

The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DDW recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity. This Order includes operational specifications for turbidity of 2 NTU as a daily average; 5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 10 NTU as an instantaneous maximum.

This Order contains effluent limitations for BOD<sub>5</sub>, total coliform organisms, and TSS and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Central Valley Water Board has previously considered the factors in Water Code section 13241 in establishing these requirements.

Final WQBEL's for BOD<sub>5</sub> and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD<sub>5</sub> is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD<sub>5</sub> and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily BOD<sub>5</sub> and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD<sub>5</sub> and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMEL's and AWEL's for BOD<sub>5</sub> and TSS of 10 mg/L and 15 mg/L, respectively, which are technically based on the capability of a tertiary system.

Section 122.45(h) of 40 C.F.R. specifies that effluent limitations may be applied to internal waste streams when standards imposed at the point of discharge are impractical or infeasible. As described further in sections II.A and IV.B.2 of this Fact Sheet, this Order requires the Discharger to comply with tertiary effluent limitations for BOD<sub>5</sub> and TSS

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prior to discharge to surface water or to the tertiary storage basins at the filter clearwell, with compliance measured at Monitoring Location INT-001, and secondary effluent limitations for BOD<sub>5</sub> and TSS at Discharge Point 001, with compliance measured at Monitoring Location EFF-001. Additionally, compliance with the effluent limitations for total coliform organisms shall be assessed at the filter clearwell at Monitoring Location INT-001.

- (d) **Plant Performance and Attainability.** The Facility provides tertiary treatment and utilizes a UV disinfection system that is designed to achieve Title 22 criteria. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible for tertiary treated discharges from the Facility.

vi. **pH**

- (a) **WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the “...pH shall not be depressed below 6.5 nor raised above 8.5.”
- (b) **RPA Results.** Raw domestic wastewater inherently has variable pH. Additionally, some wastewater treatment processes can increase or decrease wastewater pH, which if not properly controlled, would violate the Basin Plan’s numeric objective for pH in the receiving water. Therefore, reasonable potential exists for pH and WQBEL’s are required.

Federal regulations at 40 C.F.R. section 122.44(d)(1)(i) require that, “*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.*” For priority pollutants, the SIP dictates the procedures for conducting the RPA. pH is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

U.S. EPA’s September 2010 NPDES Permit Writer’s Manual, page 6-30, states, “*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL’s are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBEL’s for pathogens in all permits for POTW’s discharging to contact recreational waters).*” U.S. EPA’s TSD also recommends that factors other than effluent data should be considered in the RPA, “*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors*

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*also should be considered with available effluent monitoring data.” (TSD, p. 50)*

The Facility is a POTW that treats domestic wastewater. Based on 360 samples taken from June 2016 through December 2017, the maximum pH reported was 8.1 and the minimum was 7.3. Although the Discharger has proper pH controls in place, the pH for the Facility’s influent varies due to the nature of municipal sewage, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan’s numeric objective for pH in the receiving water. Therefore, WQBEL’s for pH are required in this Order.

- (c) **WQBEL’s.** Effluent limitations for pH of 6.5 as an instantaneous minimum and 8.5 as an instantaneous maximum are included in this Order based on protection of the Basin Plan objectives for pH.
- (d) **Plant Performance and Attainability.** Effluent pH ranged from 7.3 to 8.1. Therefore, the Central Valley Water Board concludes that immediate compliance with the effluent limitations is feasible.

#### 4. WQBEL Calculations

- a. This Order includes WQBEL’s for ammonia, antimony, BOD<sub>5</sub>, mercury, nitrate plus nitrite, pH, total coliform organisms, and TSS. The general methodology for calculating WQBEL’s based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.
- b. **Effluent Concentration Allowance (ECA).** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from section 1.4 of the SIP:

$$\begin{aligned} ECA &= C + D(C - B) && \text{where } C > B, \text{ and} \\ ECA &= C && \text{where } C \leq B \end{aligned}$$

where:

ECA = effluent concentration allowance  
D = dilution credit  
C = the priority pollutant criterion/objective  
B = the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum, with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples.

- c. **Primary and Secondary MCL’s.** For non-priority pollutants with Primary MCL’s to protect human health (e.g., nitrate plus nitrite), the AMEL is set equal to the Primary MCL and the AWEL is calculated using an AWEL/AMEL multiplier, where the AWEL multiplier is based on a 98<sup>th</sup> percentile occurrence probability and the AMEL multiplier is from Table 2 of the SIP.

For non-priority pollutants with Secondary MCL’s that protect public welfare (e.g., taste, odor, and staining), WQBEL’s were calculated by setting the LTA equal

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to the Secondary MCL and using the AMEL multiplier to set the AMEL. The AWEL was calculated using the MDEL multiplier from Table 2 of the SIP.

- d. **Aquatic Toxicity Criteria.** For priority pollutants with acute and chronic aquatic toxicity criteria, the WQBEL's are calculated in accordance with section 1.4 of the SIP. The ECA's are converted to equivalent LTA's (i.e.,  $LTA_{acute}$  and  $LTA_{chronic}$ ) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers. For non-priority pollutants, WQBEL's are calculated using similar procedures, except that an AWEL is determined utilizing multipliers based on a 98<sup>th</sup> percentile occurrence probability.
- e. **Human Health Criteria.** For priority pollutants with human health criteria, the WQBEL's are calculated in accordance with section 1.4 of the SIP. The AMEL is set equal to the ECA and the MDEL is calculated using the MDEL/AMEL multiplier from Table 2 of the SIP. For non-priority pollutants with human health criteria, WQBEL's are calculated using similar procedures, except that an AWEL is established using the MDEL/AMEL multiplier from Table 2 of the SIP.

$$AMEL = mult_{AMEL} \left[ \min \left( \overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic} \right) \right]$$

$$MDEL = mult_{MDEL} \left[ \min \left( M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}} \right) \right]$$

$$MDEL_{HH} = \left( \frac{mult_{MDEL}}{mult_{AMEL}} \right) AMEL_{HH}$$

where:

$mult_{AMEL}$  = statistical multiplier converting minimum LTA to AMEL

$mult_{MDEL}$  = statistical multiplier converting minimum LTA to MDEL

$M_A$  = statistical multiplier converting acute ECA to  $LTA_{acute}$

$M_C$  = statistical multiplier converting chronic ECA to  $LTA_{chronic}$

#### Summary of Water Quality-Based Effluent Limitations Filter Clearwell and Discharge Point 001

Table F-11. Summary of Water Quality-Based Effluent Limitations – Filter Clearwell Internal Waste Stream Compliance Point (Monitoring Location INT-001)

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--	--	--
Total Suspended Solids	mg/L	10	15	--	--	--
Non-Conventional Pollutants						
Total Coliform Organisms	MPN/100 mL	--	2.2 <sup>1</sup>	23 <sup>2</sup>	--	240

<sup>1</sup> Applied as a 7-day median effluent limitation.

<sup>2</sup> Not to be exceeded more than once in any 30-day period.

**Table F-12. Summary of Water Quality-Based Effluent Limitations – Discharge Point 001  
(Monitoring Location EFF-001)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
pH	standard units	--	--	--	6.5	8.5
Biochemical Oxygen Demand (5-day @ 20°C) <sup>3</sup>	mg/L	30	45	--	--	--
Total Suspended Solids <sup>3</sup>	mg/L	30	45	--	--	--
Priority Pollutants						
Antimony, Total Recoverable	µg/L	6.0	--	12	--	--
Mercury, Total Recoverable	lbs/year	0.28 <sup>1</sup>	--	--	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	0.7	1.6	--	--	--
	lbs/day <sup>2</sup>	49	110	--	--	--
Nitrate Plus Nitrite	mg/L	10	17	--	--	--

<sup>1</sup> For a calendar year, the total annual mass discharge of total mercury shall not exceed 0.28 pounds.

<sup>2</sup> Mass-based limits for ammonia were calculated using the permitted average dry weather flow of 8.4 MGD.

<sup>3</sup> **Percent Removal:** The average monthly percent removal of 5-day biochemical oxygen demand (BOD<sub>5</sub>) and total suspended solids (TSS) shall not be less than 85 percent.

## 5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct WET testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (MRP) (Attachment E, section V). This Order also contains effluent limitations for acute toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

- a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) The Basin Plan also states that, "...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate..."

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute WET is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA. U.S. EPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBEL's are required for specific pollutants for all facilities that exhibit certain operational or discharge*

*characteristics (e.g., WQBEL's for pathogens in all permits for POTW's discharging to contact recreational waters)." Although the discharge has been consistently in compliance with the acute effluent limitations, the Facility is a POTW that treats domestic wastewater containing ammonia and other acutely toxic pollutants. Therefore, acute toxicity effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.*

U.S. EPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance," dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc." Consistent with Order R5-2014-0007, effluent limitations for acute toxicity have been included in this Order as follows:

**Acute Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay ----- 70%  
Median for any three consecutive bioassays ----- 90%

- b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at page III-8.00) Table F-13, below, includes chronic WET testing performed by the Discharger from June 2016 through December 2017. This data was used to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

**Table F-13. Whole Effluent Chronic Toxicity Testing Results**

Date	Fathead Minnow <i>Pimephales promelas</i>		Water Flea <i>Ceriodaphnia dubia</i>		Green Algae <i>Selenastrum capricornutum</i>
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
4 October 2016	1	1	1	1	1
23 January 2017	1	1	1	1	1
11 April 2017	1	1	1	1	1
11 December 2017	1	1	1	1	1

- i. **RPA.** No dilution has been granted for chronic WET. Chronic toxicity testing results exceeding 1.3 chronic toxicity units (TUc) (as 100/NOEC) and a percent effect at 100 percent effluent exceeding 25 percent demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Based on chronic toxicity testing conducted between June 2016 and December 2017, the maximum chronic toxicity result was 1 TUc on 11 April 2017 with a percent effect of 16.14 percent. Therefore, the discharge does not have reasonable potential to

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cause or contribute to an in-stream exceedance of the Basin Plan's narrative toxicity objective.

#### D. Final Effluent Limitation Considerations

##### 1. Mass-Based Effluent Limitations

40 C.F.R. section 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 C.F.R. section 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 C.F.R. section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCL's) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations have been established in this Order for ammonia because it is an oxygen-demanding substance. In addition, mass-based limits for mercury have been established in this Order because it is a bioaccumulative pollutant. Except for the pollutants listed above, mass-based effluent limitations are not included in this Order for pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based.

40 C.F.R. section 122.45(b)(1) requires that mass-based effluent limitations for POTW's be calculated based on the design flow. Although the Facility has a current design average dry weather flow of 5.9 MGD, this Order permits average dry weather flows up to 8.4 MGD. Therefore, mass-based effluent limitations were calculated based upon 8.4 MGD.

##### 2. Averaging Periods for Effluent Limitations

40 C.F.R. section 122.45(d) requires AMEL's and AWEL's for POTW's unless impracticable. For antimony, the AWEL has been replaced with an MDEL in accordance with section 1.4 of the SIP. Furthermore, for pH and total coliform organisms, AWEL's have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

##### 3. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA sections 402(o) or 303(d)(4), or, where applicable, 40 C.F.R. section 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for chronic toxicity, BOD<sub>5</sub> and TSS. The effluent limitations for these pollutants are less stringent than those in Order R5-2014-0007. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

- a. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent WQBEL's "except in compliance with section 303(d)(4)." CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

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- i. For waters where standards are not attained, CWA section 304(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDL's or WLA's will assure the attainment of such water quality standards.
- ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

Auburn Ravine Creek is considered an attainment water for chronic toxicity, BOD<sub>5</sub>, and TSS because the receiving water is not listed as impaired on the 303(d) list for these parameters.<sup>1</sup> As discussed in section IV.D.4, below, removal of the effluent limits complies with federal and state antidegradation requirements. Thus, removal of the narrative chronic toxicity effluent limitations, and the maximum daily and mass-based effluent limits for BOD<sub>5</sub> and TSS from Order R5-2014-0007 meets the exception in CWA section 303(d)(4)(B).

- b. **Chronic Whole Effluent Toxicity (WET).** Order R5-2014-0007 included a narrative chronic WET limit. Chronic WET testing performed by the Discharger from June 2016 through December 2017 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective. Therefore, the narrative chronic toxicity effluent limitation has not been carried forward. This Order, however, is not less stringent because the same requirements to conduct chronic WET testing and to evaluate instances of toxicity are continued. The removal of the narrative chronic toxicity effluent limitation does not result in a reduction in effluent quality or a reduced level of treatment. The renewed permit is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy because this Order imposes equivalent requirements to Order R5-2014-0007 and, therefore, does not allow degradation.

However, even if it was determined that removal of the narrative chronic toxicity effluent limit is a relaxation of permit requirements, the relaxation meets the exception to backsliding under CWA section 402(o)(2)(B)(i), which allows a renewed, re-issued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available that was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and that would have justified the application of a less-stringent effluent limitation at the time of permit issuance. The new chronic WET data discussed above is new information that supports the removal of the narrative chronic toxicity effluent limitation.

- c. **Flow.** Order R5-2014-0007 included flow as an effluent limit at the Filter Clearwell Internal Waste Stream Compliance Point and Discharge Point 001 based on the Facility design flow and the design capacity of the outfall, respectively. In accordance with Order R5-2014-0007, compliance with the average dry weather flow limit at the internal waste stream compliance point was calculated using the average daily flow over three consecutive dry weather months and compliance with the average daily discharge flow limit at Discharge Point 001 was calculated based on the mean of all daily flow values obtained within a calendar day. Order R5-2014-0007 erroneously used an average daily discharge flow of 12.2 MGD for calculation of mass limitations for BOD<sub>5</sub>, TSS, and ammonia. Because the existing

<sup>1</sup> "The exceptions in section 303(d)(4) address both waters in attainment with water quality standards and those not in attainment, i.e. waters on the section 303(d) impaired waters list." State Water Board Order WQ 2008-0006, Berry Petroleum Company, Poso Creek/McVan Facility.

antidegradation analysis assessed the impacts of a maximum discharge of 8.4 MGD ADWF, mass limitations should have been based on a maximum flow of 8.4 MGD.

Flow is not a pollutant and therefore has been changed from an effluent limit to a discharge prohibition in this Order, which is an equivalent level of regulation. Flow as an average dry weather flow discharge prohibition will be calculated using the average daily flow over three consecutive dry weather months.

As described in section II.A of this Fact Sheet, the Discharger completed a Facility expansion project during the term of Order R5-2014-0007 with maximum flow at 5.9 MGD as an average dry weather flow. The Discharger plans to increase the discharge capacity of the treatment system to 7.1 MGD during Phase 1 of the proposed improvements. The Discharger may increase the discharge capacity to 8.0 MGD in Phase 2 during the term of this Order. The outfall at Discharge Point 001 currently possesses a maximum hydraulic capacity of 25 MGD and discharges may occasionally reach a maximum of 25 MGD. However, the maximum permitted Average Dry Weather Flow remains at 8.4 MGD and mass-based effluent limits contained in this Order are calculated using a maximum flow of 8.4 MGD.

#### 4. Antidegradation Policies

As discussed in section II.A of this Fact Sheet, as part of the Facility expansion and regionalization project with the Placer County SMD1 WWTP, which was completed by the Discharger during the term of Order R5-2014-0007, the hydraulic capacity of the outfall at Discharge Point 001 has been revised from 13 MGD to 25 MGD. Order R5-2014-0007 retained an average daily discharge flow limit of 12.2 MGD from previous Order R5-2008-0156, since the Discharger did not submit a request for flow increase. In the ROWD submitted on 17 July 2018, the Discharger requested an increase in the discharge flow at Discharge Point 001 from 12.2 MGD to 25 MGD based on the recent Facility expansion and current hydraulic capacity of the outfall. This Order allows for the requested increase in the hydraulic capacity at the outfall to 25 MGD. Discharge flows up to 25 MGD are permitted, however, the ADWF remains 8.4 MGD.

Order R5-2014-0007 erroneously used an average daily discharge flow of 12.2 MGD for calculation of mass limitations for BOD<sub>5</sub>, TSS, and ammonia. This Order contains new, more stringent mass-based effluent limitations for ammonia based on an average dry weather flow of 8.4 MGD. Additionally, this Order retains performance-based mass effluent limitations for mercury, which were calculated based on the permitted average dry weather flow. This Order does not provide for an increase in the mass of ammonia or mercury discharged to the receiving water.

Additionally, as described in section II.E of this Fact Sheet, the Discharger is in the process of completing a phased upgrade project that would increase the design average dry weather treatment capacity of the Facility to 7.1 MGD during Phase 1 and to 8.0 MGD during Phase 2. Previous Orders R5-2008-0156 and R5-2014-0007 provided antidegradation findings and authorized an increase in the average dry weather flow up to 8.4 MGD. This Order does not provide for an increase in average dry weather flows or mass of pollutants to the receiving water therefore, a complete antidegradation analysis is not necessary for the proposed flow increases.

The Order requires compliance with applicable federal technology-based standards and with WQBEL's where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State

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Antidegradation Policy. Compliance with these requirements will result in the use of BPTC of the discharge. The impact on existing water quality will be insignificant.

This Order removes effluent limitations for chronic toxicity based on updated information, as described in sections IV.C.5, and IV.D.3 of this Fact Sheet. The removal of WQBEL's for chronic toxicity will not result in a decrease in the level of treatment or control, or a reduction in water quality. Therefore, the Central Valley Water Board finds that the removal of the effluent limitations for chronic toxicity does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the removal of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and the State Antidegradation Policy.

This Order also removes MDEL's and mass-based effluent limitations for BOD<sub>5</sub> and TSS based on 40 C.F.R part 122.45(d) and (f), and as described further in section IV.D.3 of this Fact Sheet. The removal of MDEL's and mass-based effluent limits for BOD<sub>5</sub> and TSS will not result in a decrease in the level of treatment or control, or a reduction in water quality. Both concentration-based AMEL's and AWEL's remain for BOD<sub>5</sub> and TSS, as well as an average dry weather flow prohibition that limits the amount of flow that can be discharged to the receiving water during dry weather months. The combination of concentration-based effluent limits and a flow prohibition in this Order are equivalent to mass-based effluent limitations, which were redundant limits contained in previous Orders by multiplying the concentration-based effluent limits and permitted average dry weather flow by a conversion factor to determine the mass-based effluent limitations. Order R5-2014-0007 erroneously used an average daily discharge flow of 12.2 MGD for calculation of mass limitations for BOD<sub>5</sub> and TSS. Mass-based limits for BOD<sub>5</sub> and TSS should have been based on average dry weather flows of plant capacity up to a maximum of 8.4 MGD, which would have resulted in more stringent effluent limits. Therefore, the Central Valley Water Board finds that the removal of MDEL's and mass-based effluent limits for BOD<sub>5</sub> and TSS does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the removal of mass-based effluent limitations for BOD<sub>5</sub> and TSS is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Antidegradation Policy.

#### **5. Stringency of Requirements for Individual Pollutants**

This Order contains both technology-based effluent limitations and WQBEL's for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD<sub>5</sub>, pH, and TSS. Restrictions on these constituents are discussed in section IV.B.2 of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. For pH, both technology-based effluent limitations and WQBEL's are applicable. The more stringent of the effluent limitations for pH are implemented by this Order. These limitations are not more stringent than required by the CWA.

WQBEL's have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBEL's were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual WQBEL's for priority pollutants are based on the CTR implemented by the SIP, which was approved by U.S. EPA on 18 May 2000. Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

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**Summary of Final Effluent Limitations  
Filter Clearwell Internal Waste Stream Compliance Point and Discharge Point 001**

**Table F-14. Summary of Final Effluent Limitations – Filter Clearwell Internal Waste Stream Compliance Point (Monitoring Location INT-001)**

Parameter	Units	Effluent Limitations					Basis <sup>1</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	--	--	--	TTC
Total Suspended Solids	mg/L	10	15	--	--	--	TTC
Non-Conventional Pollutants							
Total Coliform Organisms	MPN/100 mL	--	2.2 <sup>2</sup>	23 <sup>3</sup>	--	240	Title 22

<sup>1</sup> TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.

Title 22 – Based on CA Division of Drinking Water Reclamation Criteria, CCR, division 4, chapter 3.

<sup>2</sup> Applied as a 7-day median effluent limitation.

<sup>3</sup> Not to be exceeded more than once in any 30-day period.

**Table F-15. Summary of Final Effluent Limitations – Discharge Point 001 (Monitoring Location EFF-001)**

Parameter	Units	Effluent Limitations					Basis <sup>1</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Conventional Pollutants							
pH	standard units	--	--	--	6.5	8.5	BP
Biochemical Oxygen Demand (5-day @ 20°C) <sup>6</sup>	mg/L	30	45	--	--	--	CFR
Total Suspended Solids <sup>6</sup>	mg/L	30	45	--	--	--	CFR
Priority Pollutants							
Antimony, Total Recoverable	µg/L	6.0	--	12	--	--	MCL
Mercury, Total Recoverable	lbs/year	0.28 <sup>2</sup>	--	--	--	--	PB
Non-Conventional Pollutants							
Ammonia Nitrogen, Total (as N)	mg/L	0.7	1.6	--	--	--	NAWQC
	lbs/day <sup>3</sup>	49	110	--	--	--	
Nitrate Plus Nitrite (as N)	mg/L	10	17	--	--	--	MCL
Acute Toxicity	% survival	--	--	70 <sup>4</sup> /90 <sup>5</sup>	--	--	BP

Parameter	Units	Effluent Limitations					Basis <sup>1</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	

- <sup>1</sup> CFR – Based on secondary treatment standards contained in 40 C.F.R part 133.  
BP – Based on water quality objectives contained in the Basin Plan.  
MCL – Based on the Primary Maximum Contaminant Level.  
PB – Based on Facility performance.  
NAWQC – Based on U.S. EPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
- <sup>2</sup> The effluent calendar year annual mercury load shall not exceed 0.28 lbs.
- <sup>3</sup> Based on an average dry weather flow of 8.4 MGD.
- <sup>4</sup> 70% minimum of any one bioassay.
- <sup>5</sup> 90% median for any three consecutive bioassays.
- <sup>6</sup> **Percent Removal:** The average monthly percent removal of 5-day biochemical oxygen demand (BOD<sub>5</sub>) and total suspended solids (TSS) shall not be less than 85 percent.

**E. Interim Effluent Limitations – Not Applicable**

**F. Land Discharge Specifications – Not Applicable**

**G. Recycling Specifications – Not Applicable**

Recycling specifications for the Facility are included in separate Master Reclamation Permit R5-2005-0040-01 (as amended by Order R5-2012-0052).

**V. RATIONALE FOR RECEIVING WATER LIMITATIONS**

**A. Surface Water**

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, and toxicity.

- a. **Turbidity.** The Discharger proposed an averaging period for turbidity where natural turbidity is between 0 and 5 NTU in the 2 May 2001 *City of Lincoln Wastewater Treatment and Reclamation Facility Addendum to the Report of Waste Discharge* (Addendum). The Basin Plan allows for the application of appropriate averaging periods in determining compliance with turbidity limitations provided that beneficial uses are protected. The proposed site-specific receiving water limitations were established in previous Order 5-01-242 and retained in previous Order R5-2008-0156.

The Central Valley Water Board's 2000 *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for pH and Turbidity at Deer Creek El Dorado & Sacramento Counties, Staff Report, Volume II, Supporting Technical Information* provided the basis for annual averaging periods for turbidity. In the Addendum, the Discharger stated that normal turbidity measurements have been observed to range from 10-50 NTU under normal Auburn Ravine Creek

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stream flow conditions. California Department of Fish and Wildlife staff contributed to the turbidity studies in the Amendments. As such, the Discharger concluded that an increase in turbidity from 0.2 to 2 NTU would be a violation if the averaging period does not reflect the normal range and variability of ambient turbidity in Auburn Ravine Creek. Central Valley Water Board staff prepared previous Orders 5-01-242 and R5-2008-0156 to require annual averaging from 0 to 0.5 NTU and monitoring for specified increases over natural turbidity for higher ranges.

The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to limit turbidity to 2 NTU when the natural turbidity is less than 1 NTU. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and U.S. EPA. Consistent with the revised water quality objective in the Basin Plan, Order R5-2014-0007 included requirements to limit turbidity to 2 NTU when the natural turbidity is less than 1 NTU, but retained the annual averaging period for natural turbidity ranges between 0 and 1 NTU and 1 and 5 NTU. This Order retains the receiving water limitations and averaging periods for turbidity established in Order R5-2014-0007.

#### **B. Groundwater**

1. The beneficial uses of the underlying groundwater are MUN, industrial service supply, industrial process supply, and agricultural supply.
2. WDR's for groundwater, including limitations and monitoring requirements, are regulated through Master Reclamation Permit R5-2005-0040-01 (as amended by Order R5-2012-0052), NPDES No. CA0085103.

### **VI. RATIONALE FOR PROVISIONS**

#### **A. Standard Provisions**

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D. The Discharger must comply with all Standard Provisions and with those additional conditions that are applicable under 40 C.F.R. section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

#### **B. Special Provisions**

##### **1. Reopener Provisions**

- a. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.

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- b. **Whole Effluent Toxicity (WET).** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a site-specific Toxicity Reduction Evaluation (TRE) or, under certain circumstances, through participation in an approved Toxicity Evaluation Study (TES) in lieu of conducting a site-specific TRE. This Order may be reopened to include a new chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE and/or TES.
- c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents, with the exception of copper, which utilizes a site-specific WER of 6.34. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable. If the Discharger performs studies to determine site-specific WER's and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.
- d. **Drinking Water Policy.** On 26 July 2013, the Central Valley Water Board adopted Resolution R5-2013-0098, amending the Basin Plan and establishing a Drinking Water Policy. The State Water Board approved the Drinking Water Policy on 3 December 2013. This Order may be reopened to incorporate monitoring of drinking water constituents to implement the Drinking Water Policy.
- e. **Ultraviolet Light (UV) Disinfection Operating Specifications.** UV system operating specifications are required to ensure that the UV system is operated to achieve the required pathogen removal. UV disinfection system specifications and monitoring and reporting requirements are required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g., viruses) in the wastewater. UV dosage is dependent on several factors, such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV disinfection system. The UV specifications in this Order are based on the National Water Research Institute (NWRI) and American Water Works Association Research Foundation (AWWRF) "Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse" first published in December 2000 and revised as a Third Edition dated August 2012 (NWRI Guidelines). If the Discharger conducts a site-specific UV engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation required by Title 22 for disinfected tertiary recycled water, this Order may be reopened to modify the UV specifications, in accordance with Reopener Provision VI.C.1.g.
- f. **Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).** On 31 May 2018, as part of the CV-SALTS initiative, the Central Valley Water Board approved Basin Plan Amendments to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the Central Valley. If approved by the State Water Board, the Office of Administrative Law, and U.S. EPA, the Amendments would impose certain new requirements on salt and nitrate discharges. If the Amendments ultimately go into effect, this Order may be amended or modified to incorporate any newly-applicable requirements.

## 2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity (WET) Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) Based on whole

effluent chronic toxicity testing performed by the Discharger from June 2016 through December 2017, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

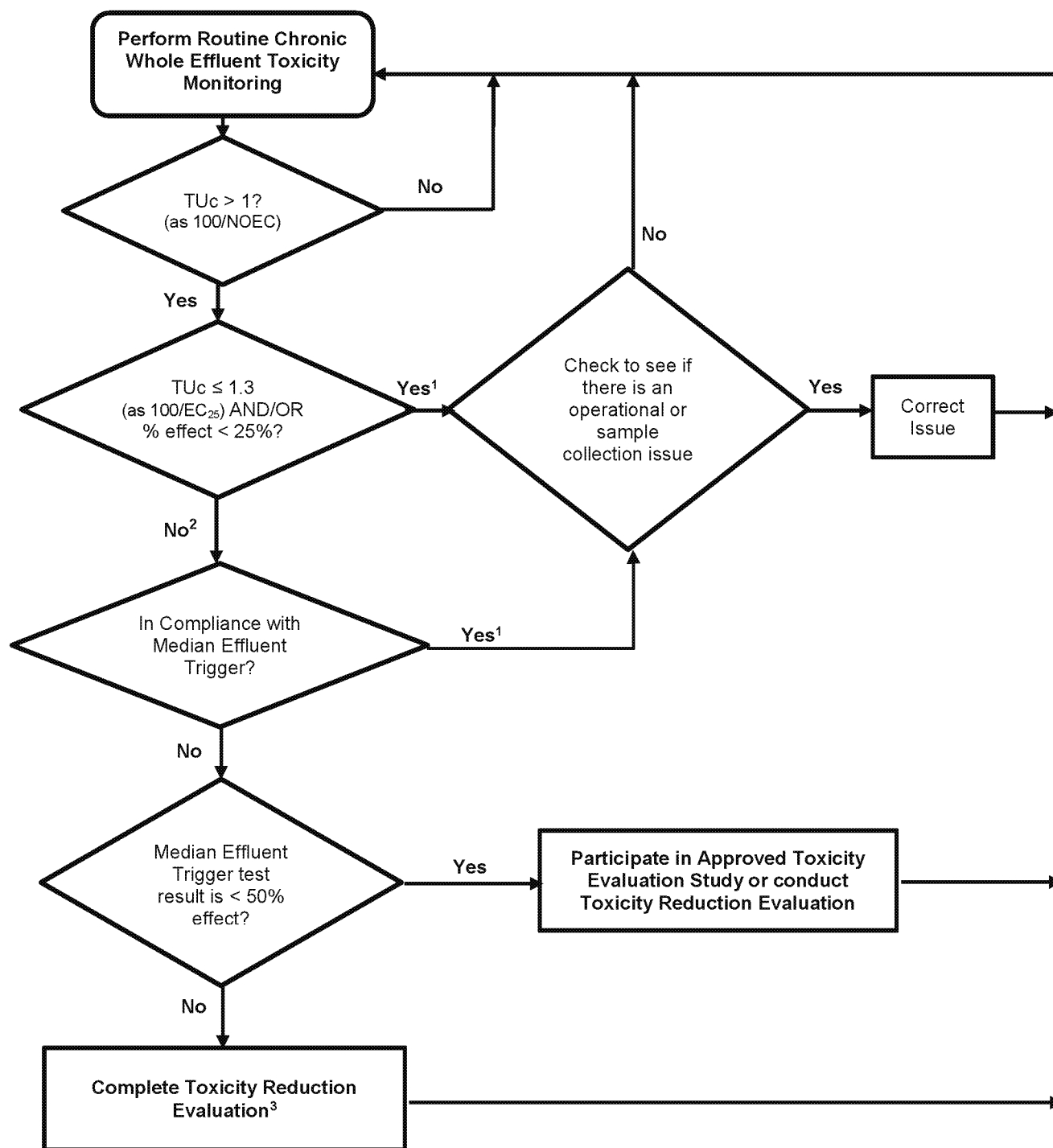
The MRP of this Order requires chronic WET monitoring for demonstration of compliance with the Basin Plan's narrative toxicity objective. If the discharge exceeds the chronic toxicity monitoring trigger, this provision requires the Discharger either participate in an approved TES or conduct a site-specific TRE.

A TES may be conducted in lieu of a TRE if the percent effect at 100 percent effluent is less than or equal to 50 percent. Determining the cause of toxicity can be challenging when the toxicity signal is low. Several Central Valley facilities with similar treatment systems have been experiencing intermittent low-level toxicity. The dischargers have not been successful identifying the cause of the toxicity because of the low toxicity signal and the intermittent nature of the toxicity. Due to these challenges, CVCWA, in collaboration with staff from the Central Valley Water Board, has initiated a Special Study to Investigate Low Level Toxicity Indications (Group Toxicity Study). This Order allows the Discharger to participate in an approved TES, which may be conducted individually or as part of a coordinated group effort with other similar dischargers that are exhibiting toxicity. Although the current CVCWA Group Toxicity Study is related to low-level toxicity, participation in an approved TES is not limited to only low-level toxicity issues.

See the WET Monitoring Flow Chart (Figure F-2), below, for further clarification of the decision points for determining the need for TES/TRE initiation.

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**Figure F-2**  
**WET Accelerated Monitoring Flow Chart**



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<sup>1</sup> The Discharger shall participate in an approved TES if the discharge has exceeded the chronic toxicity monitoring trigger twice or more in the past 12-month period and the cause is not identified and/or addressed.

<sup>2</sup> The Discharger may elect to take additional samples to determine the 3-sample median. The samples shall be collected at least one week apart and the final sample shall be within 6 weeks of the initial sample exhibiting toxicity.

<sup>3</sup> The Discharger may participate in an approved TES instead of a TRE if the Discharger has conducted a TRE within the past 12 months and has been unsuccessful in identifying the toxicant.

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For facilities utilizing granular media filtration as part of the treatment process train upstream of UV disinfection, the NWRI Guidelines recommend a minimum hourly average UV dose of 100 mJ/cm<sup>2</sup>. Therefore, this Order includes UV operating specifications requiring a minimum hourly average UV dose of 100 mJ/cm<sup>2</sup> and a minimum hourly average UV transmittance of 55 percent, per the NWRI Guidelines. If the Discharger conducts a site-specific UV engineering study that demonstrates a lower UV dose meets a Title 22 equivalent virus removal, this Order may be reopened to revise the UV operating specifications accordingly.

- c. **Treatment Pond Operating Requirements.** Consistent with Order R5-2014-0007, this Order includes operating requirements to prevent inundation or washout due to floods with a 100-year return frequency, preclude public contact with wastewater, and prevent breeding of mosquitos.

## 5. Special Provisions for Publicly-Owned Treatment Works (POTW's)

### a. Pretreatment Requirements

- i. 40 C.F.R. section 403.8(a) requires POTW's with a total design flow greater than 5 MGD and receiving pollutants that pass through or interfere with the operation of the POTW to establish a POTW Pretreatment Program. Order R5-2014-0007 authorized an expansion of the Facility to provide treatment up to 8.4 MGD and required the Discharger to implement an Industrial Pretreatment Program upon the Facility being rated as having greater than 5.0 MGD capacity. The Discharger has completed the Facility expansion to increase the design average dry weather treatment capacity to 5.9 MGD and accommodate regionalization with the Placer County SMD1 WWTP. U.S. EPA Region 9 staff conducted inspections of the significant industrial users (SIU's) and metal finishing operations within the Placer County SMD1 WWTP's service area in May 2003. As a result of those inspections, two SIU's were issued Findings of Violation and Administrative Orders, while another was issued a Request for Information and Self-Monitoring Order. Other industries were identified within the Placer County SMD1 WWTP's service area that may discharge constituents of concern. Consequently, Order R5-2010-0092 for the Placer County SMD1 WWTP required implementation of an Industrial Pretreatment Program. Since the Facility now has a total design average dry weather flow greater than 5 MGD and accepts industrial wastes from the Placer County SMD1 WWTP's service area following completion of the regionalization project, this Order requires the Discharger to implement an Industrial Pretreatment Program.
- ii. The federal CWA section 307(b), and federal regulations, 40 C.F.R. part 403, require POTW's to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants that will interfere with treatment plant operations or sludge disposal and prevent pass-through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 C.F.R. part 403.
- iii. The Discharger shall implement and enforce its approved pretreatment program, which is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Central Valley Water Board, the State Water Board or U.S. EPA may take enforcement actions against the Discharger as authorized by the CWA.

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- b. **Sludge/Biosolids Treatment or Discharge Specifications.** Sludge in this Order means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the Facility. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agricultural, silvicultural, horticultural, and land reclamation activities as specified under 40 C.F.R. part 503. This Order does not regulate offsite use or disposal of biosolids, which are regulated instead under 40 C.F.R. part 503; administered by U.S. EPA. The Sludge/Biosolids Treatment or Discharge Specifications in this Order implement the California Water Code to ensure sludge/biosolids are properly handled on-site to prevent nuisance, protect public health, and protect groundwater quality.
- c. **Collection System.** The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on 2 May 2006. The State Water Board amended the MRP for the General Order through Order WQ 2013-0058-EXEC on 6 August 2013. The General Order requires public agencies that own or operate sanitary sewer systems with greater than 1 mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMP's) and report all sanitary sewer overflows (SSO's), among other requirements and prohibitions.
- The General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows that are more extensive, and therefore, more stringent than the requirements under federal standard provisions. The Discharger and public agencies that are discharging wastewater into the Facility's collection system were required to obtain enrollment for regulation under the General Order by 1 December 2006.
- d. Limited portions of the Facility's collection system may be outside the service area of the Discharger. In order to assure compliance with Discharge Prohibitions against overflows and bypasses, and to assure protection of the entire collection system and treatment works from industrial discharges, it is necessary that the Discharger control discharges into the entire collection system. To control discharges into the entire collection system, this Order requires the Discharger to establish interagency agreements with the collection system users. The interagency agreements shall contain, at a minimum, requirements for reporting of unauthorized releases of wastewater, maintenance of the collection system, backup power or adequate wet well capacity at all pump stations to prevent overflows during power outages and pump failures, and pump station high water alarm notification systems. The agreements shall also require implementation of an industrial pretreatment program that meets the minimum requirements of this Order.

## 6. Other Special Provisions

- a. Consistent with Order R5-2014-0007, this Order requires the discharge to be oxidized, filtered, and adequately disinfected pursuant to DDW reclamation criteria, Title 22, or equivalent.
- b. **Facility Expansion.** The Discharger is in the process of completing a phased expansion project to increase the Facility's treatment capacity from an average dry weather flow of 5.9 MGD to an average dry weather flow of 8.0 MGD in order to

accommodate for planned growth and the associated increase in wastewater flows within the Bickford Ranch housing subdivision. Phase 1, which is planned for completion in 2020, provides for an increase in the average dry weather treatment capacity from 5.9 MGD to 7.1 MGD. Phase 2, which may be completed during the term of this Order, provides for an increase in the average dry weather treatment capacity from 7.1 MGD to 8.0 MGD.

Prior to the adoption of previous Order R5-2008-0156 (and as documented in section IV.D.4 of Order R5-2008-0156), the Discharger completed an antidegradation analysis consistent with an increase in regulated capacity up to an average dry weather flow capacity of 8.4 MGD. Subsequent to completion of all additional Facility upgrades necessary to develop such tertiary treatment capacity and certification by a registered and licensed Civil Engineer, the Discharger is authorized to discharge at a certified average dry weather flow capacity not to exceed of 8.4 MGD.

#### **7. Compliance Schedules – Not Applicable**

### **VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS**

CWA section 308 and 40 C.F.R. sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The MRP, Attachment E of this Order, establishes monitoring, reporting, and recordkeeping requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

#### **A. Influent Monitoring**

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD<sub>5</sub> and TSS reduction requirements). The monitoring frequency for flow (continuous) has been retained from Order R5-2014-0007.
2. Order R5-2014-0007 required influent monitoring for BOD<sub>5</sub> and TSS five times per week. This Order reduces the monitoring frequency for BOD<sub>5</sub> and TSS from five times per week to three times per week. The Central Valley Water Board finds that this frequency is sufficient for characterizing the wastewater and assessing compliance with effluent limitations established in this Order.

#### **B. Effluent Monitoring**

1. Pursuant to the requirements of 40 C.F.R. section 122.44(i)(2), effluent monitoring is required for all constituents with effluent limitations or discharge prohibitions. Effluent monitoring is necessary to assess compliance with effluent limitations and discharge prohibitions, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. The effluent monitoring frequency and sample type for flow (daily) has been retained from Order R5-2014-0007 at Monitoring Location INT-001 to determine compliance with the applicable discharge prohibition and characterize the effluent for this parameter.
3. Order R5-2014-0007 required monitoring for total coliform organisms three times per week at Monitoring Location INT-001. This Order moves the point of compliance from Monitoring Location INT-001 to Monitoring Location UVS-001, which is an internal

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compliance point following the UV disinfection system. The Central Valley Water Board finds that total coliform monitoring at Monitoring Location UVS-001 is sufficient for determining compliance following the disinfection process.

4. Effluent monitoring frequencies and sample types for flow (daily), pH (daily), mercury (quarterly), chlorine residual (daily, when used in the treatment process for maintenance purposes), dissolved oxygen (daily), electrical conductivity (weekly), temperature (daily), and total dissolved solids (monthly) have been retained from Order R5-2014-0007 at Monitoring Location EFF-001 to determine compliance with effluent limitations and discharge prohibitions, where applicable, and characterize the effluent for these parameters.
5. Order R5-2014-0007 required daily effluent monitoring for BOD<sub>5</sub>, TSS, and ammonia at Monitoring Locations EFF-001 and INT-001. For Monitoring Location EFF-001, this Order reduces the monitoring for BOD<sub>5</sub> and TSS to three times per week and reduces the monitoring frequency for ammonia from daily to one time per week. For Monitoring Location INT-001, this Order requires monitoring for BOD<sub>5</sub> and TSS three times per week. Ammonia monitoring is not required at Monitoring Location INT-001. The Central Valley Water Board finds that these frequencies are sufficient for determining compliance with effluent limitations for BOD<sub>5</sub>, TSS, and ammonia established in this Order.
6. Order R5-2014-0007 required weekly effluent monitoring for electrical conductivity at Monitoring Location EFF-001. This Order reduces the monitoring frequency for electrical conductivity from weekly to monthly. The Central Valley Water Board finds that this frequency is sufficient for characterizing the effluent for this parameter.
7. Order R5-2014-0007 required effluent monitoring for hardness three times per week at Monitoring Location EFF-001. This Order reduces the monitoring frequency for hardness from three times per week to monthly. The Central Valley Water Board finds that this frequency is sufficient for characterizing the effluent for this parameter.
8. Monitoring data collected during the term of Order R5-2014-0007 indicates that antimony in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL. Therefore, this Order establishes monthly effluent monitoring requirements for antimony at Monitoring Location EFF-001.
9. As discussed in section IV.C.3 of this Fact Sheet, this Order establishes effluent limitations for nitrate plus nitrite as a single parameter, applicable to discharges from Discharge Point 001. Therefore, this Order establishes monthly monitoring requirements for nitrate and nitrite at Monitoring Location EFF-001 in order to determine compliance with the applicable effluent limitations for nitrate plus nitrite as a single parameter.
10. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires effluent monitoring for priority pollutants and other constituents of concern quarterly during the year 2021 at Monitoring Location EFF-001. This monitoring frequency has been retained from Order R5-2014-0007. See section IX.D of the MRP (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.
11. Water Code section 13176, subdivision (a), states: *"The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with section 100825) of chapter 4 of part 1 of division 101 of the Health and Safety Code."* DDW

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accredits laboratories through its Environmental Laboratory Accreditation Program (ELAP).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the CWA (Wat. Code §§ 13370, subd. (c), 13372, 13377). Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with CWA requirements (Wat. Code § 13372, subd. (a)). The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH, and immediate analysis is required for temperature (40 C.F.R. § 136.3(e), Table II). The Discharger maintains an ELAP certified laboratory on-site and conducts analyses for chlorine residual, dissolved oxygen and pH within the required 15 minute hold times.

### C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Consistent with Order R5-2014-0007, quarterly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Consistent with Order R5-2014-0007, chronic WET testing is required quarterly during discharge to surface water, in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

The most sensitive species to be used for chronic toxicity testing was determined in accordance with the process outlined in the MRP, section V.E.2. Based on the Discharger's chronic toxicity data collected since completion of the regionalization project, the species that exhibited the maximum chronic toxicity result was the water flea (*Ceriodaphnia dubia*), with a result of 1 TUc and a percent effect of 16.14 percent. Consequently, *Ceriodaphnia dubia* has been established as the most sensitive species for chronic WET testing.

### D. Receiving Water Monitoring

#### 1. Surface Water

- a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
- b. The receiving water monitoring frequency and sample type for hardness (quarterly) at Monitoring Locations RSW-001 and RSW-002 have been retained from Order R5-2014-0007 to characterize the receiving water for this parameter.
- c. Order R5-2014-0007 required daily receiving water monitoring for pH, dissolved oxygen, temperature, and turbidity at Monitoring Locations RSW-001 and RSW-002. This Order reduces the monitoring frequencies for these parameters from daily to weekly at Monitoring Locations RSW-001 and RSW-002. The Central Valley Water Board finds that this frequency is sufficient for determining compliance with applicable receiving water limitations and characterizing the receiving water for these parameters.
- d. Order R5-2014-0007 required weekly receiving water monitoring for electrical conductivity at Monitoring Locations RSW-001 and RSW-002. This Order reduces the monitoring frequencies for this parameter from weekly to monthly at Monitoring Locations RSW-001 and RSW-002. The Central Valley Water Board finds that this frequency is sufficient for characterizing the receiving water for this parameter.
- e. Order R5-2014-0007 required quarterly receiving water monitoring for fecal coliform organisms at Monitoring Locations RSW-001 and RSW-002. As discussed in

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section IV.C.3 of this Fact Sheet, the Facility provides tertiary treatment and utilizes a UV disinfection system, which is designed to achieve Title 22 criteria. Since the Facility is able provide tertiary treatment and achieve Title 22 disinfection, the Central Valley Water Board finds that retaining receiving water monitoring requirements for fecal coliform organisms at Monitoring Locations RSW-001 and RSW-002 is not necessary to evaluate the impacts of the effluent on the receiving water. Thus, receiving water monitoring requirements for fecal coliform organisms at Monitoring Locations RSW-001 and RSW-002 have not been retained from Order R5-2014-0007.

- f. In accordance with section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires upstream receiving water monitoring for priority pollutants and other pollutants of concern at Monitoring Location RSW-001 quarterly during the year 2021, concurrent with effluent monitoring, in order to collect data to conduct an RPA for the next permit renewal. See section IX.D of the MRP (Attachment E) for more detailed requirements related to performing priority pollutant monitoring.

**2. Groundwater – Not Applicable (See Master Reclamation Permit R5-2005-0040-01)**

**E. Other Monitoring Requirements**

**1. Biosolids Monitoring**

Biosolids monitoring is required to ensure compliance with the pretreatment requirements contained in 40 C.F.R. part 403 and implemented in section VI.C.5.b of this Order. Biosolids monitoring is required per U.S. EPA guidance to evaluate the effectiveness of the pretreatment program.

<https://www.epa.gov/biosolids/compliance-and-annual-reporting-guidance-about-clean-water-act-laws>

**2. Water Supply Monitoring**

- a. Water supply monitoring is required to evaluate the source of constituents in the wastewater. Consistent with Order R5-2014-0007, this Order requires quarterly water supply monitoring for electrical conductivity at Monitoring Location SPL-001.
- b. Order R5-2014-0007 required annual water supply monitoring for standard minerals. The Central Valley Water Board finds that water supply monitoring for standard minerals is not necessary; thus, water supply monitoring requirements for these parameters have not been retained from Order R5-2014-0007.

**3. Filtration System Monitoring**

Filtration system monitoring and reporting are required to determine compliance with the operation specifications for turbidity in Special Provision VI.C.4.a. Consistent with Order R5-2014-0007, this Order requires continuous turbidity monitoring at Monitoring Location FIL-001 to ensure the operational specifications for turbidity are being met prior to the disinfection process.

**4. Ultraviolet Light (UV) Disinfection System Monitoring**

UV system monitoring and reporting are required to ensure that the UV system is operated to adequately inactivate pathogens in the tertiary treated wastewater. UV disinfection system monitoring is imposed to achieve equivalency to requirements established by DDW and the NWRI Guidelines.

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**5. Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program**

Under the authority of section 308 of the CWA (33 U.S.C. § 1318), U.S. EPA requires all dischargers under the NPDES Program to participate in the annual DMR-QA Study Program. The DMR-QA Study evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits. There are two options to satisfy the requirements of the DMR-QA Study Program: (1) The Discharger can obtain and analyze a DMR-QA sample as part of the DMR-QA Study; or (2) Per the waiver issued by U.S. EPA to the State Water Board, the Discharger can submit the results of the most recent Water Pollution Performance Evaluation Study from their own laboratories or their contract laboratories. A Water Pollution Performance Evaluation Study is similar to the DMR-QA Study. Thus, it also evaluates a laboratory's ability to analyze wastewater samples to produce quality data that ensure the integrity of the NPDES Program. The Discharger shall submit annually the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study to the State Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance Evaluation Study to U.S. EPA's DMR-QA Coordinator and Quality Assurance Manager.

**VIII. PUBLIC PARTICIPATION**

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the City of Lincoln, Wastewater Treatment and Reclamation Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

**A. Notification of Interested Persons**

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the following **<Describe Notification Process (e.g., newspaper name and date)>**

The public had access to the agenda and any changes in dates and locations through the Central Valley Water Board's website at:

[http://www.waterboards.ca.gov/centralvalley/board\\_info/meetings/](http://www.waterboards.ca.gov/centralvalley/board_info/meetings/)

**B. Written Comments**

Interested persons were invited to submit written comments concerning tentative WDR's as provided through the notification process. Comments were due either in person or by mail to the Executive Office at the Central Valley Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on **22 October 2018**.

**C. Public Hearing**

The Central Valley Water Board held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date: **6/7 December 2018**  
Time: **8:30 a.m.**

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Location: Regional Water Quality Control Board, Central Valley Region  
11020 Sun Center Dr., Suite #200  
Rancho Cordova, CA 95670

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony was requested in writing.

**D. Reconsideration of Waste Discharge Requirements**

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water board to review the action in accordance with Water Code section 13320 and CCR, Title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the 30<sup>th</sup> day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

State Water Resources Control Board  
Office of Chief Counsel  
P.O. Box 100, 1001 I Street  
Sacramento, CA 95812-0100

Or by email at [waterqualitypetitions@waterboards.ca.gov](mailto:waterqualitypetitions@waterboards.ca.gov)

For instructions on how to file a petition for review, see  
[http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality/wqpetition\\_instr.shtml](http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml)

**E. Information and Copying**

The ROWD, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (916) 464-3291.

**F. Register of Interested Persons**

Any person interested in being placed on the mailing list for information regarding the WDR's and NPDES permit should contact the Central Valley Water Board, reference this Facility, and provide a name, address, and phone number.

**G. Additional Information**

Requests for additional information or questions regarding this order should be directed to Beth Thayer at (916) 464-4671.

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ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Ammonia Nitrogen, Total (as N)	mg/L	0.27	0.11	2.14	2.14 <sup>1</sup>	2.72 <sup>2</sup>	--	--	--	--	Yes
Chloride	mg/L	72	12	230	860 <sup>1</sup>	230 <sup>3</sup>	--	--	--	250	No
Antimony, Total Recoverable	µg/L	6.6	1.7	6.0	--	--	14	4,300	--	6.0	Yes
Electrical Conductivity @ 25°C	µmhos/cm	395 <sup>4</sup>	165 <sup>4</sup>	900	--	--	--	--	--	900	No
Mercury, Total Recoverable	µg/L	0.00080 <sup>5</sup>	0.015 <sup>5</sup>	0.012	--	0.012 <sup>6</sup>	0.050	0.051	--	--	Yes <sup>7</sup>
Nitrate, Total (as N)	mg/L	4.2	1.2	10	--	--	--	--	--	10	Yes <sup>7</sup>
Nitrite, Total (as N)	mg/L	0.041	<0.014	1.0	--	--	--	--	--	1.0	No
Sulfate	mg/L	28 <sup>4</sup>	9.0	250	--	--	--	--	--	250	No
Total Dissolved Solids	mg/L	234 <sup>4</sup>	94 <sup>4</sup>	500	--	--	--	--	--	500	No

General Note: All inorganic concentrations are given as a total recoverable.

MEC = Maximum Effluent Concentration

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR or NTR)

CCC = Criterion Continuous Concentration (CTR or NTR)

Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)

Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)

Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective

MCL = Drinking Water Standards Maximum Contaminant Level

Footnotes:

- (1) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
- (2) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day average.
- (3) U.S. EPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
- (4) Represents the maximum observed annual average concentration for comparison with the MCL.
- (5) Represents the maximum observed annual average concentration for comparison with the Sport Fish Water Quality Objective established in *Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions* (Statewide Mercury Provisions).
- (6) Sport Fish Water Quality Objective established in the Statewide Mercury Provisions. Criteria representative of the corresponding fish tissue water column concentration objective for total mercury within flowing water bodies (e.g., rivers, creeks, streams, and waters with tidal mixing).
- (7) See section IV.C.3 of the Fact Sheet for a discussion of the RPA results.

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## ATTACHMENT H – CALCULATION OF WQBEL'S

Human Health WQBEL's Calculations										
Parameter	Units	Criteria	Mean Background Concentration	CV Eff <sup>1</sup>	Dilution Factor	MDEL/AMEL Multiplier	AMEL Multiplier	AMEL	MDEL	AWEL
Antimony, Total Recoverable	µg/L	6.0	2.0	0.60	--	2.01	1.55	6.0	12	--
Nitrate Nitrogen, Total (as N)	mg/L	10	1.2 <sup>2</sup>	0.60	--	1.73 <sup>3</sup>	1.55	10	--	17

<sup>1</sup> Coefficient of Variation (CV) was established in accordance with section 1.4 of the SIP.

<sup>2</sup> Maximum background concentration.

<sup>3</sup> Represents the AWEL/AMEL multiplier, which was used to calculate the AWEL for this non-priority pollutant based on the applicable Primary MCL.

Aquatic Life WQBEL's Calculations																
Parameter	Units	Criteria		B	Dilution Factors		Aquatic Life Calculations							Final Effluent Limitations <sup>7</sup>		
		CMC	CCC		CMC	CCC	ECA Multiplier <sub>acute</sub>	LTA <sub>acute</sub>	ECA Multiplier <sub>chronic</sub>	LTA <sub>chronic</sub>	AMEL Multiplier <sup>95</sup>	AWEL Multiplier	MDEL Multiplier <sup>99</sup>	AMEL <sup>2</sup>	AWEL <sup>3</sup>	MDEL <sup>4</sup>
Ammonia Nitrogen, Total (as N)	mg/L	2.14 <sup>5</sup>	2.53 <sup>5</sup>	0.11	--	--	0.141	0.303	0.547	1.38 <sup>6</sup>	2.43	5.24	--	0.7	1.6	--

<sup>1</sup> CV was established in accordance with section 1.4 of the SIP.

<sup>2</sup> Average Monthly Effluent Limitations are calculated according to section 1.4 of the SIP using a 95th percentile occurrence probability.

<sup>3</sup> Average Weekly Effluent Limitations are calculated according to section 1.4 of the SIP using a 98th percentile occurrence probability.

<sup>4</sup> Maximum Daily Effluent Limitations are calculated according to section 1.4 of the SIP using a 99<sup>th</sup> percentile occurrence probability.

<sup>5</sup> CMC and CCC for ammonia retained from Order R5-2014-0007 in order to calculate WQBEL's in this Order.

<sup>6</sup> The LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period and a monthly sampling frequency (n) of 30.

<sup>7</sup> See the ammonia discussion in the Fact Sheet (Attachment F), section IV.C.3.b.i.

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